

7408

BEAM PENTODE

FOR AF POWER-AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 7408 is a beam-power pentode primarily designed for use in audio-frequency power-amplifier applications. The tube is a direct replacement for the 6V6-GT, but features additional controlled zero-bias characteristics.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage, AC or DC*	6.3 ± 0.6	Volts
Heater Current†	0.45	Amperes
Direct Interelectrode Capacitances†		
Grid-Number 1 to Plate: (g1 to p)	0.7	pf
Input: g1 to (h+k+g2+b.p.)	9.0	pf
Output: p to (h+k+g2+b.p.)	7.5	pf

MECHANICAL

Mounting Position—Any
Envelope—T-9, Glass
Base—B7-7, Intermediate-Shell Octal 7-Pin or
B7-59, Short Intermediate-Shell Octal 7-Pin with carriers

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

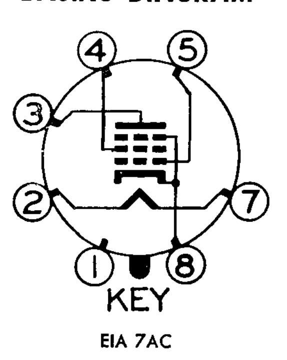
Plate Voltage	350	Volts
Screen Voltage	315	Volts
Plate Dissipation	14	Watts
Screen Dissipation	2.2	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.1	Megohms
With Cathode Bias	0.5	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

BASING DIAGRAM

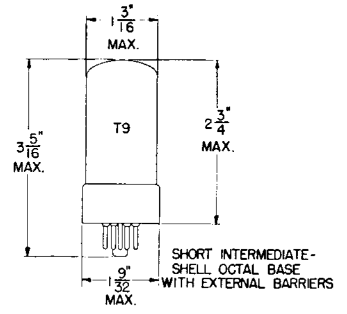


EIA 7AC

TERMINAL CONNECTIONS

Pin 1—No Connection
Pin 2—Heater
Pin 3—Plate
Pin 4—Grid Number 2 (Screen)
Pin 5—Grid Number 1
Pin 7—Heater
Pin 8—Cathode and Beam Plates

PHYSICAL DIMENSIONS



EIA 9-41

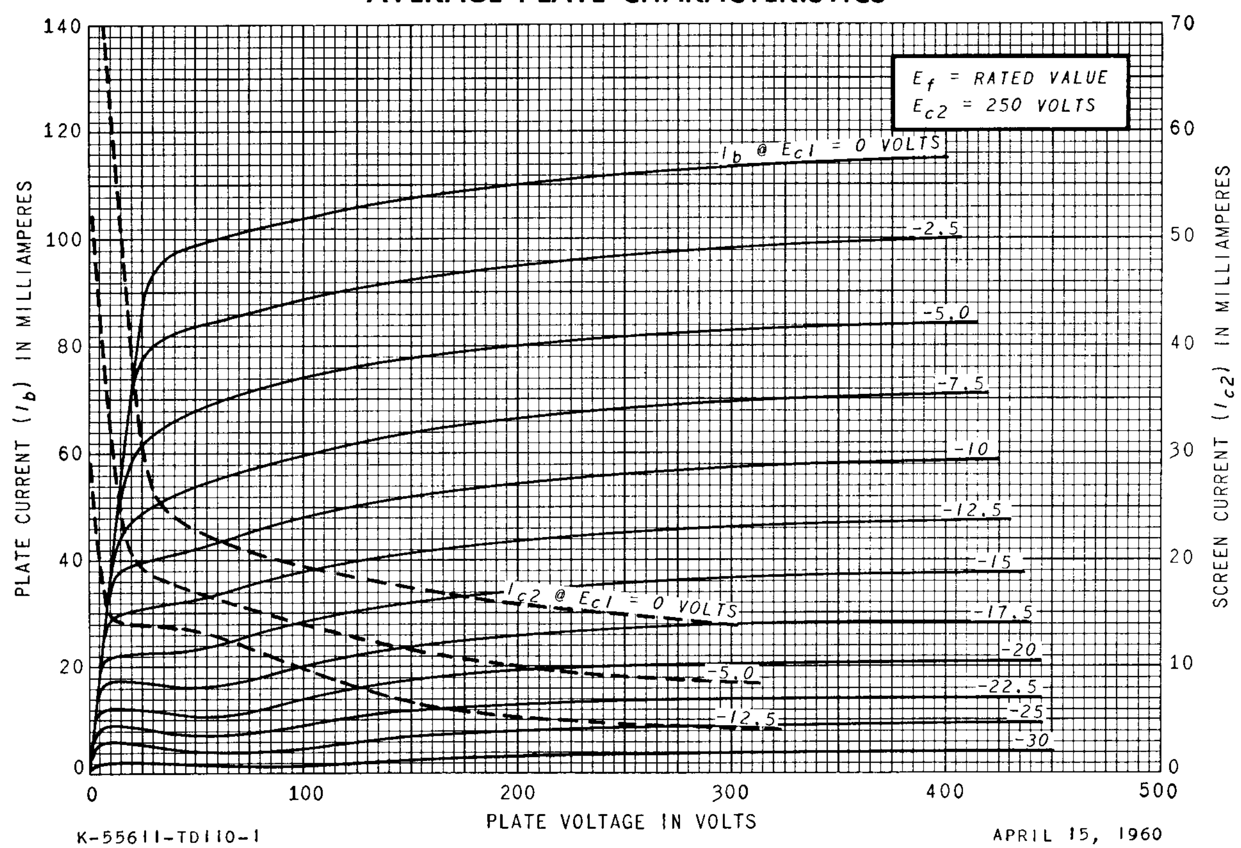
CHARACTERISTICS AND TYPICAL OPERATION

CLASS A₁ AMPLIFIER

Plate Voltage	60	250	Volts
Screen Voltage	250	250	Volts
Grid-Number 1 Voltage	0	−12.5	Volts
Peak AF Grid-Number 1 Voltage	—	12.5	Volts
Plate Resistance, approximate	—	50,000	Ohms
Transconductance	—	4100	Micromhos
Zero-Signal Plate Current	100	45	Milliamperes
Maximum-Signal Plate Current	—	47	Milliamperes
Zero-Signal Screen Current	22	4.5	Milliamperes
Maximum-Signal Screen Current	—	7.0	Milliamperes
Load Resistance	—	5000	Ohms
Total Harmonic Distortion, approximate	—	7	Percent
Maximum-Signal Power Output	—	4.5	Watts

* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.
† Heater current of a bogey tube at Ef = 6.3 volts.
‡ Without external shield.

AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS

E_f = RATED VALUE
E_{c2} = 250 VOLTS

I_b @ E_{c1} = +15 VOLTS
+10
+5.0
0
-5.0
-10
-15
-20

I_{c1} @ E_{c1} = +15 VOLTS
+10
+5.0

PLATE CURRENT (I_b) IN MILLIAMPERES: 0, 40, 80, 120, 160, 200, 240, 280

GRID-NUMBER 1 CURRENT (I_{c1}) IN MILLIAMPERES: 0, 10, 20, 30, 40, 50, 60, 70

PLATE VOLTAGE IN VOLTS: 0, 100, 200, 300, 400, 500

K-55611-TD110-2

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AVERAGE PLATE CHARACTERISTICS

E_f = RATED VALUE
E_{c1} = 0 VOLTS

E_{c2} = 250 VOLTS
200
150
100

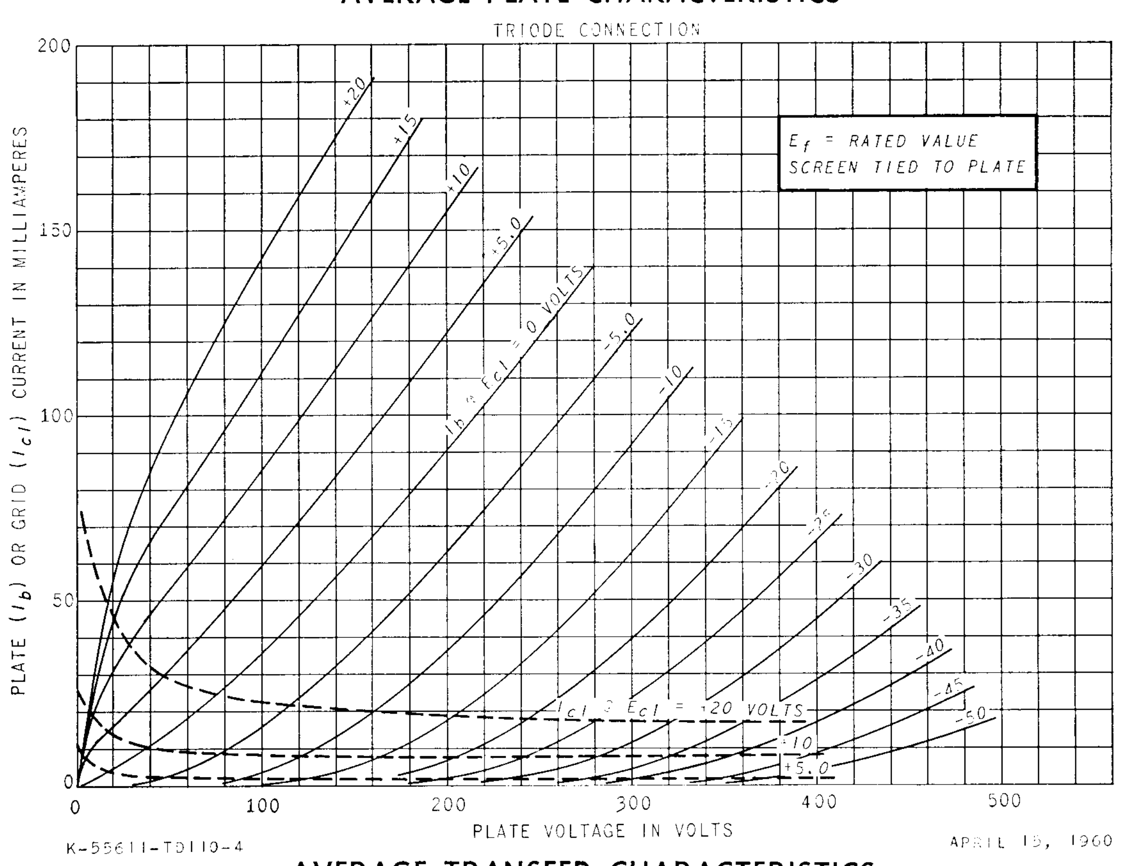
PLATE CURRENT IN MILLIAMPERES: 0, 20, 40, 60, 80, 100, 120, 140

PLATE VOLTAGE IN VOLTS: 0, 100, 200, 300, 400, 500

K-55611-TD110-3

APRIL 15, 1960

AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS

E_f = RATED VALUE
E_b = 250 VOLTS

E_{c2} = 250 VOLTS
200
150
100

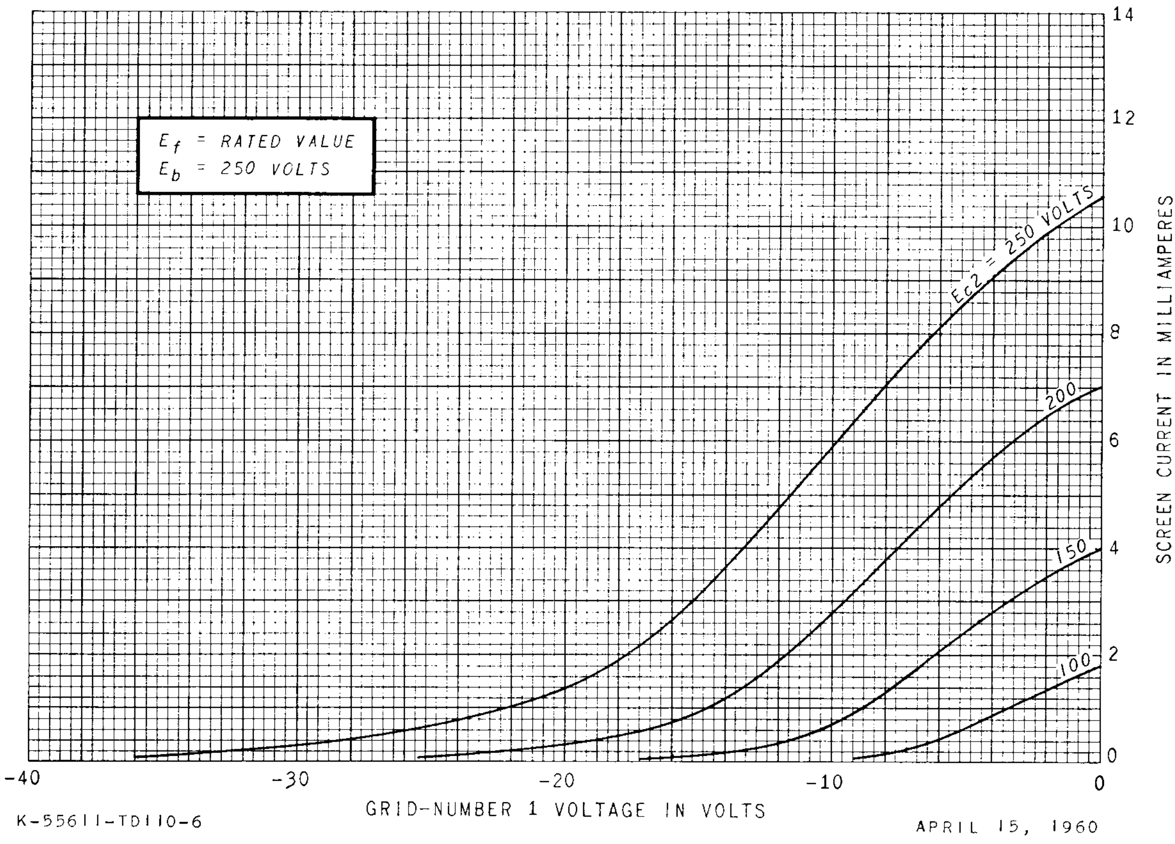
PLATE CURRENT IN MILLIAMPERES: 0, 20, 40, 60, 80, 100, 120, 140

GRID-NUMBER 1 VOLTAGE IN VOLTS: -40, -30, -20, -10, 0

K-55611-TD110-5

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AVERAGE TRANSFER CHARACTERISTICS



OPERATION CHARACTERISTICS